

Appl. No.: 10/049,898
Amdt. Dated: October 30, 2003
Reply to Office Action of: August 20, 2003

Amendments to the Specification:

Please replace the paragraphs [0006], [0009] to [0012], [0023] and [0035] with the following amended paragraphs:

[0006] To solve this problem, isolators are installed in fiberoptic systems and optical amplifiers. They guarantee that light is transmitted in only one direction, but and that propagation in the opposite direction is largely suppressed.

[0009] Along with these "bulk" isolators, so-called "all-fiber" insulators are also used (see, for instance, US-A 5,479,542). Although the magnetooptical effect in the glass fiber is exploited in this type of isolator, an additional device for generating an external magnetic field is necessary. This has the disadvantage that the optical components are comparatively large and cannot be built into the cable. Additionally, the aforementioned isolators are extremely temperature- and humidity-sensitive. They must therefore be arranged protected from environmental influences and arranged, for example, in a closed container such as a sleeve. For certain network infrastructures such as oceanic cable or aerial cable networks, this is not possible at all or is possible only at great expense.

[0010] The problem of to be solved by the invention is therefore to create an optical waveguide serving as a polarization rotator and which can be integrated into an optical waveguide system.

[0011] Another problem of to be solved by the invention is to provide a fiberoptic isolator that avoids the above-mentioned disadvantages.

[0012] According to the invention, the problems mentioned above are solved by an optical waveguide according to Claim 1 and by an optical isolator according to Claim 5. The subordinate claims pertain to additional advantageous aspects of the invention.

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[0023] For better understanding of the invention, a conventional optical isolator will first be described with reference to Figure 1. Via a glass fiber cable 21 (ending at 29 as illustrated) containing an optical waveguide 27; (glass fiber, glass fiber core) that continues beyond end 29, a light signal reaches optical isolator 23, and reaches another glass fiber cable 25 at its end 29 via another optical waveguide 27. Glass fibers 21 and 27 each consist of a core (index of refraction n_K) and a cladding (refractive index $n_M < n_K$).

[0035] Alongside In addition to the small diameter of the polarization rotator thus constructed, which permits integration into the cable, the possibility of easy joining by fusion splicing exists, which can reduce reflection at the joint site. In combination with a polarizing or polarization-preserving glass fiber as polarizer, it is thus possible to construct an optical isolator that is completely integrated into the cable.